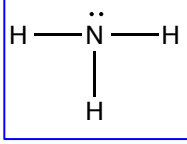
LECTURE 12

1. For the molecules or molecular ions in the problem above, give the formula type (Example:AX_2E), the steric number (SN), indicate the geometry (Example: bent), and give expected bond angles.

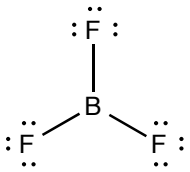
Compound	Formula Type	SN	Geometry	Bond angle(s)
(a) $AlCl_4^{-1}$	AX_4	4	Tetrahedral	109.5°
(b) XeF_3^{+1}	AX_3E_2	5	T-Shaped	<90°
(c) PCl_6^{-1}	AX_6	6	Octahedral	90°
(d) IF_5	AX_5E	6	Square Pyramidal	<90°

2. For each of the following molecules, write the Lewis structure and predict whether each molecule is polar or nonpolar:
(a) NH_3 (b) BF_3 (c) OF_2 (d) IF_3
Note that you do not need to indicate formal charges (FC) on your Lewis structures, but you should consider FC to draw most stable Lewis structures.

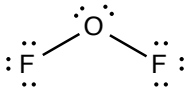
a) NH_3 is polar



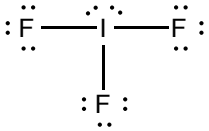
b) BF_3 is nonpolar



c) OF_2 is polar



d) IF_3 is polar



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